

Critique of Hydroplate Theory by Walt Brown

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April 22, 2024

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Introduction

Martin G. Selbrede of Chalcedon's Publications (a) lists 18 geological features that he claims that Walt Brown says cannot be satisfactorily explained by current geological theory and (b) suggests that various features of the hydroplate theory which are proposed by Walt Brown can give explanations that explain those places that are not accounted for by current geological theory. See all that Selbrede says at this link:

<https://chalcedon.edu/resources/articles/dr-walt-browns-hydroplate-theory>

The word "hydroplate" refers to the "*great fountains of the deep*" (or springs of the deep) that are described in Proverbs 8:22-28 and referred to by Moses in Genesis 7:11 that reads in the New International Version translation as:

"In the six hundredth year of Noah's life, on the seventeenth day of the second month --- on that day all the springs of the great deep burst forth, and the floodgates of the heavens were opened."

In other words, not only was water supposedly supplied to Noah's flood from 40 days and 40 nights of rain from the heavens, but also from large volumes of water (perhaps half as much of the water in the oceans) that emerged from great depths through cracks in the Earth's crust that are interpreted to be the mid-ocean spreading centers that exist in the Pacific and Atlantic Oceans (**Figure 1**).

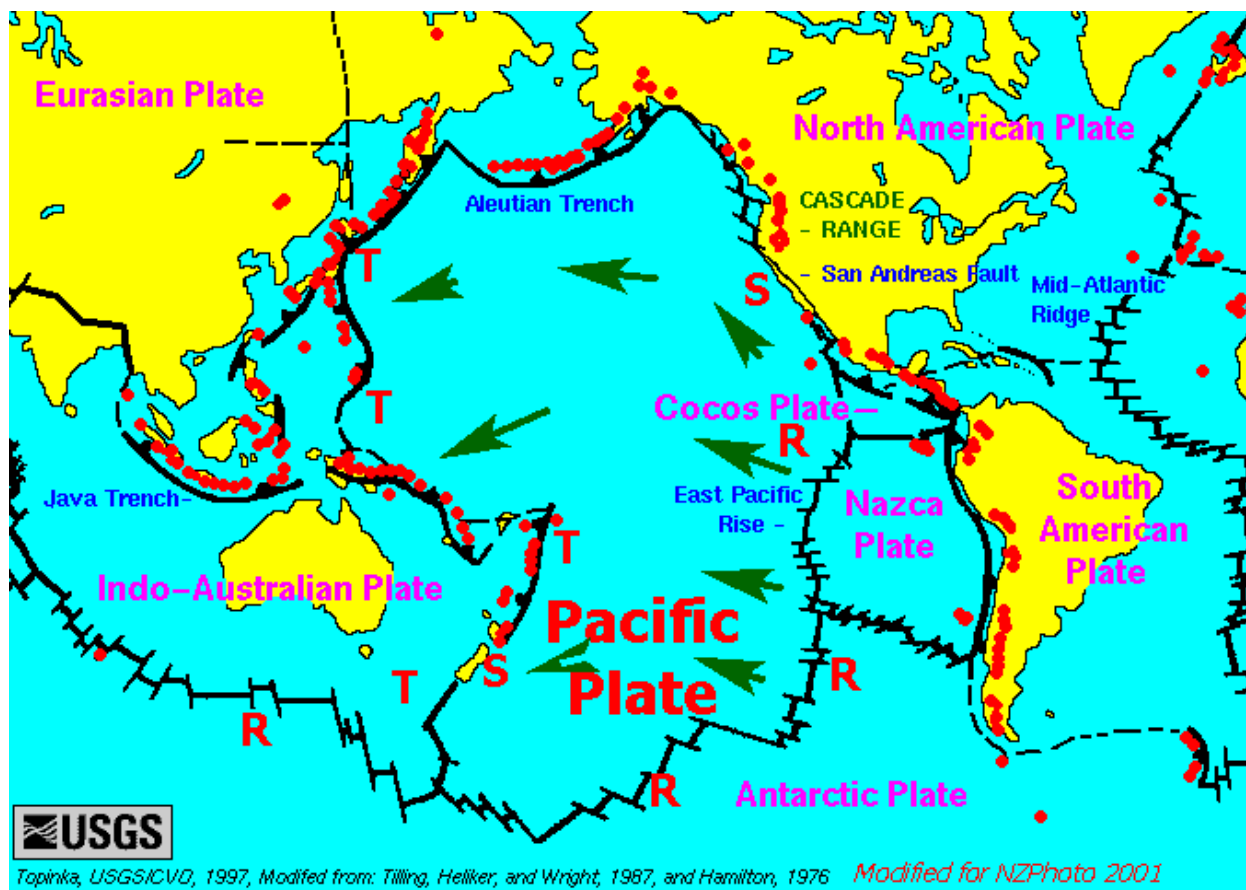


Figure 1. The “ring of fire” (red dots), showing sites of volcanic eruptions around the outer edges of the Pacific Ocean and the mid-ocean spreading center in the Atlantic Ocean and in the Pacific Ocean (now between the Cocos Plate and the Nazca Plate and labelled East Pacific Rise).

Comments on the Hydroplate Theory

The following are brief comments in a **red font** on the supposed 18 (**One to Eighteen**) unexplained geological theories of the hydroplate theory (**HPT**) listed by Selbrede.

One In the **HPT**, the changes in direction and trend of the spreading center in the Atlantic Ocean is used to be the true separation line of the North and South American continents from the European and African continents instead of the current shorelines.

Two It is pointed out that continental shelves extend out from the continents considerable distance, making the true boundaries once between the continents halfway down the continental slopes.

Three It is pointed out that ocean trenches are long, narrow depressions on the ocean floor where in the plate tectonics model, there are a dozen 30-mile-thick plates that dive (subduct) down into the mantle. The question is then asked: “Why do seismic reflection profiles show no distortion of the horizontal sedimentary layers in trenches, if they are the point where the proposed plates dive down into the mantle?”

First, this discussion of trenches begins with an error because there are not a dozen 30-mile-thick plates that exist on the Earth’s globe where the plates dive down into the mantle. Only bordering the rims of the Pacific Ocean does such subduction occur adjacent to continents. None exists in the Atlantic Ocean. Second, distortion or deformation actually

exists in sedimentary layers inland from the trenches which the **HPT** ignores. See this image (**Figure 2**).

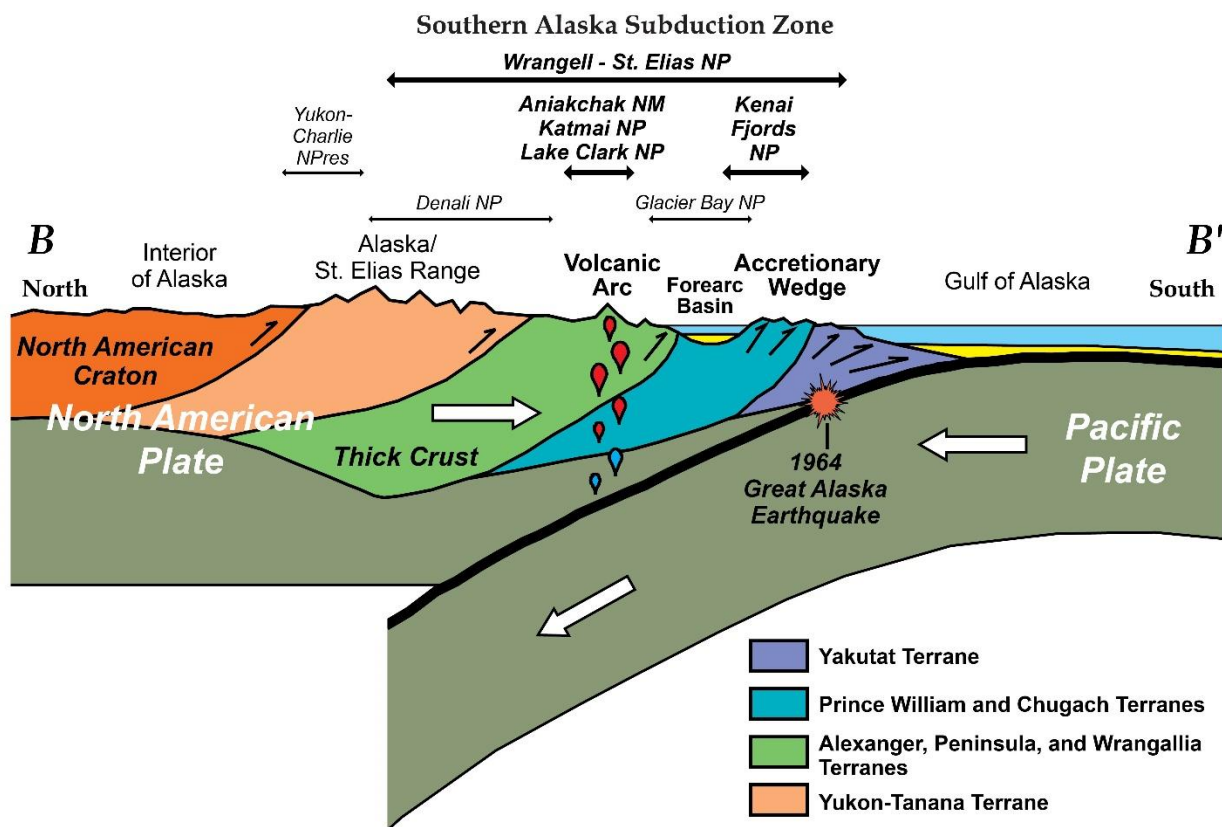


Figure 2. Deformed sedimentary rocks inland from the Southern Alaska Subduction Zone or trench in the Gulf of Alaska.

Four Two points are made here: (a) that seamounts exist in the Pacific floor, but none exists in the Atlantic and (b) that their flat tops must have resulted from wave action that planed off their tops. In the **HPT** it is said that “*Either sea level was once much lower, or ocean floors were higher, or both --- each possibility raises new and difficult questions.*”

But there are no new and difficult questions here because there is no subduction of ocean plates bordering the Atlantic

Ocean adjacent to the continents. Careful studies of how erosion has reduced former volcanoes by stream and wave erosion once the volcanoes are no longer fed by emerging basalt lava are described in the following article and link.

Emperor Seamount Chain and Hawaiian Ridge – Ancient Age or 4,350 Years Old [Nr61Hawaii.pdf \(csun.edu\)](#)

Wherever seamounts are found in the Pacific Ocean after former volcanoes became extinct --- progressive erosion by surface streams and waves will cause them to have flat table tops. It is also well known that sea levels were reduced 300 to 600 feet when much water was removed from the oceans during the four episodes of glaciation during the Ice Age.

Five It is well known that earthquakes occur when plates “*rub against each other, temporarily lock, and then periodically jerk loose.*” In the **HPT**, it is then asked (a): “*Why are some earthquakes, many quite powerful, far from plate boundaries?*”

Yes, it is true, that many earthquakes occur far from current plate boundaries, but Walt Brown does not seem to realize that there are many former plate boundaries in at least 5 episodes of continental plates sliding around on the Earth’s surface where these boundaries are now in the interiors of continents where oceanic plates were once subducted on their margins in Precambrian cratons and shields. See the following image (**Figure 3**).

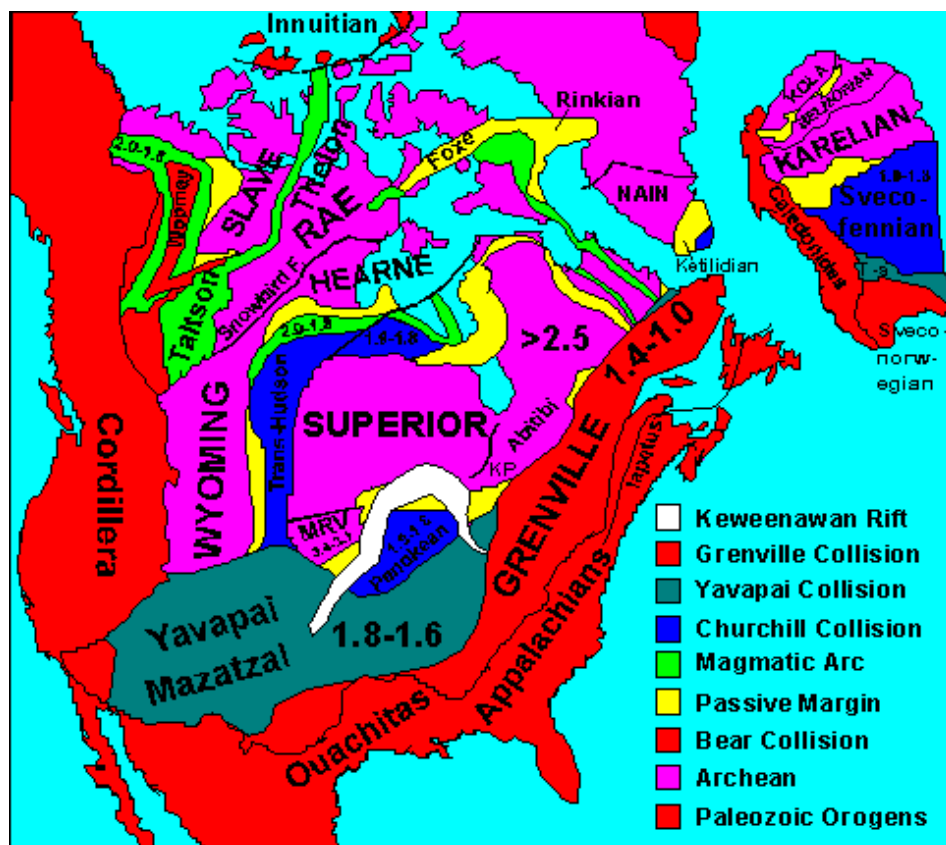


Figure 3. Different provinces in the North American continent.

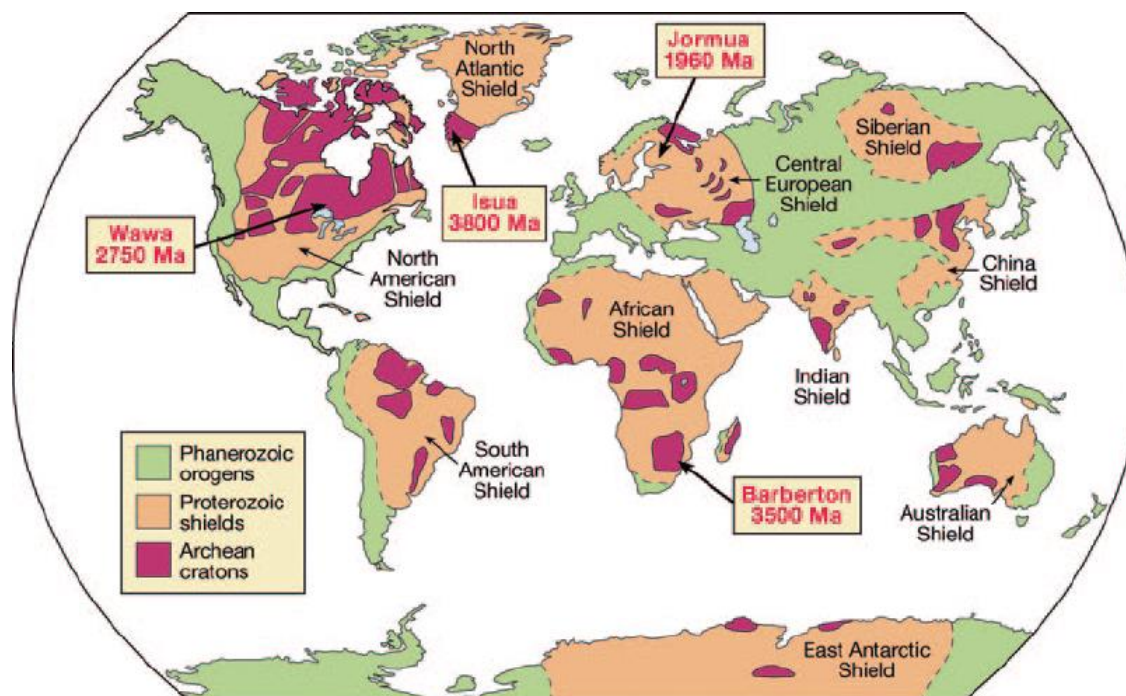


Figure 4. World locations of orogens, shields, and cratons.

Figure 4 shows different orogens, shields, and cratons that have similar distributions of provinces shown in **Figure 3**. Walt Brown does not take this information into account in his **HPT** model. On the basis of **Figures 3** and **4**, it is not surprising that large earthquakes on ancient subduction zones could occur in the interior of continents where at least five different ancient Precambrian and Paleozoic provinces have been split apart by plate tectonics and which then recombined by coming together again in large continents that were subsequently split apart again in repeated cycles of plate tectonics. One of the continent collisions produced the Paleozoic Appalachian Mountain province shown in red on the east side of North America (**Figure 3**). An example of a place where large earthquakes occur in the interior of continents is near the southern tip of Illinois where magnitude 5.4 earthquakes have been reported. See:

https://en.wikipedia.org/wiki/List_of_earthquakes_in_Illinois

And (b): *“Why do earthquakes occur when water is forced into the ground, after large water reservoirs are built and filled?”*

Such earthquakes are not mysterious. They are easily explained. For example, in Oklahoma, waste water has been pumped into wells that penetrated rocks under stress where the friction between moving blocks on either side of a fault surface has been sufficiently reduced by waste water on the fault surfaces such that this added water lubricated the fault surfaces so that frequent earthquakes occurred. See:

<https://apnews.com/article/oklahoma-earthquakes-injection->

[wells-temblors-1cb5fd087a852bf576594597c8282ee4](#) Prior to the pumping waste water into wells, earthquakes were rare.

On that basis, it is quite reasonable that water added to large reservoirs will soak into fractures and faults below a large reservoir of water and could cause earthquakes. Such water soaking into underlying rocks can also result in failure of a dam holding the water in a lake behind the dam as occurred in California on March 12, 1928 when the St. Francis Dam broke.

Six Plate tectonic theory describes parallel bands that exist on the ocean crust adjacent to mid-ocean ridges in both the Pacific and Atlantic Oceans with mirror images on either side of these ridges (**Figure 1**). The **HPT** claims that such reversals do not exist and that in some places the reversals are perpendicular to the bands and along fractures.

That is, in the **HPT** there is no conveyor belt movement of the oceanic crust away from the mid-ocean spreading centers. However, such conveyor belt movement is definitely indicated by the deposition of zillions of radiolarian skeletons with increasing thicknesses away from the mid-ocean spreading center in the Pacific Ocean as indicated by the following article and link.

Can Flood Geology and Catastrophic Plate Tectonics explain Sedimentary Rocks? [Collins5.pdf \(csun.edu\)](#)

Seven It is pointed out that “*submarine canyons are often much larger than on continents.*” Then, two questions are asked: (a) “How did they form?” and (b) “What force could gouge out a network of such canyons 15,000 feet below sea level?”

Along the coast of California, rivers bring sand to the Pacific Ocean and long-shore drift of this sand carries it south along the coast until it suddenly disappears down deep submarine canyons, such as Monterey Canyon. This moving sand erodes a deep valley until it reaches the depth of the adjacent basin where it begins to fill the basin and eventually forms a sandstone layer.

Eight It is pointed out that large amount of coal is found in Antarctica and the following two questions are asked: (a) “*Was it once warm enough for trees to grow?*” And (b) “*If it was, how could so much vegetation grow where it is night 6 months of the year?*”

Yes, that is true, and this coal has Permian to Triassic ages, and the vegetation that produced this coal was growing at a time in which the large continent (Pangea) was assembled, and Antarctica, that was once a part of Pangea, was at a different latitude location than now where and when the climate was hot and “swampy.” On that basis, Walt Brown cannot base his **HPT** interpretation on the present location of Antarctica.

Moreover, *Lepidodendron* trees, growing 100 feet tall, are described in 13 different overlying coal-bearing beds of Carboniferous age in the following article and link: Position Statement: Science, Bible, Noah’s Flood, and Evolution [Nr102Position.pdf \(csun.edu\)](#) Because Brown wants to have his **HPT** model to occur in the one-year of the supposed global flood, such trees cannot be growing in multiple overlying layers with such heights in the one-year time of the supposed Noah’s

flood because each overlying coal bed requires more than one year of tree-growth time.

Nine It is said: *“How does an ice age begin and end? As glaciers expand, they reflect more of the sun’s radiation away from the earth, lowering global temperatures and causing even further glacier growth: a cycle that should continue until the entire globe is frozen. Conversely, if glaciers diminish, as they have in recent year, the earth should reflect less heat, warm up, and melt all glaciers forever.”*

In his **HPT** model, Brown wants there to be only one Ice Age that occurs following the supposed one-year Noah’s Flood. But the following image of Antarctica glaciation shows that there were four ice ages in the last 400 thousand years (**Figure 5**).

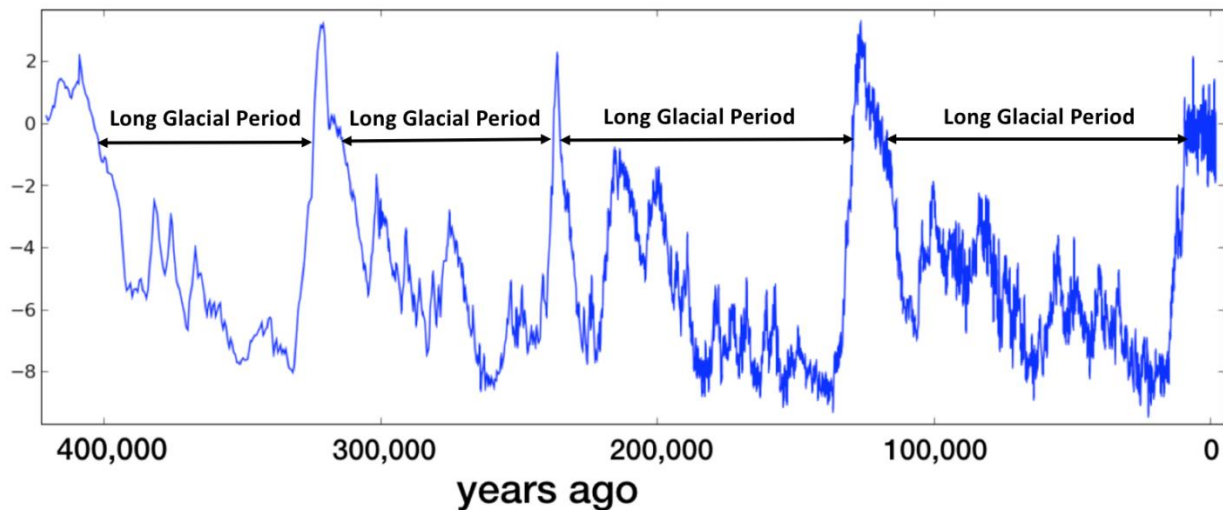


Figure 5. Four different long glacial ice periods in the glacial ice in Antarctica that is based on O^{18}/O^{16} ratios in the ice layers.

Moreover, the following article shows that there were multiple ice ages through geologic time earlier (older) than the

latest Ice Age, including a possible time for a “snowball Earth” in which the Earth’s globe was covered with ice.

Glacial tillites, geologic history, and biblical scientific accuracy [Nr40tillites.pdf \(csun.edu\)](#)

On that basis, Brown cannot correctly use a supposed one-year ice age in his **HPT** in which four times enough snow must have fallen on Canada (like what occurred in Antarctica, **Figure 5**) to make thicknesses of ice (perhaps as much as 18,000 feet thick) that would be of sufficient thickness for continental glaciers to move from there into Kansas, Illinois, Indiana, and Ohio. To create this amount of ice thickness and then melt this ice away four times in 4,350 years in the time after the supposed one-year of Noah’s flood would require extreme winter temperatures with huge amounts of snowfall and such speeds of melting of thick ice that would require impossible blow-torch climates. It is strange that no humans reported these extreme climatic conditions. See:

Pleistocene Continental Glaciers: A Single Ice Age Following a Genesis Flood or Multiple Ice Ages?
[Pleistocene glaciers.pdf \(csun.edu\)](#)

Ten It is said: “*Some fleshy remains of about 50 mammoths and rhinoceroses have been found frozen and buried in Alaska and Siberia. One mammoth still had identifiable food in its mouth and stomach.*” Brown then claims that “*to reproduce this result today, one would have to suddenly push a well-fed elephant (dead or alive) into a very large freezer and turn the thermostat to -150°F. Today, the average January*

temperature in Siberia is -30°F: how did huge herds of these mammoths thrive at these temperatures, let alone find water to drink? Or were the Arctic regions much warmer in the past?”

Why are so many mammoth fossils found and why is such a quick burial of a living mammoth eating vegetation easily explained? These animals must have been living, perhaps near the end of the Ice Age, when a tongue of ice from a glacier flowed across a valley to block the flow of water in the valley. The ice dam created by this blockage then caused a large lake to back up in the valley behind the dam, and the water in the lake must have increased in depth as water continued to flow down the valley from higher elevations. Eventually, the level of the water rose behind the ice dam sufficiently to cause the ice to float. When that happened, suddenly the water, with great depth and under high pressure, rushed out underneath the ice to cause a huge flood, called a *jökulhlaup* (an Icelandic term), which is a high wall of water that rushes down the valley. If a large herd of mammoths were grazing in a flood plain down-valley, they could suddenly be overwhelmed by this flood and become buried and eventually frozen in the flood debris. Many such *jökulhlaups* could have happened through hundreds of years, so that many herds of mastodons could have been buried to produce the millions of mammoth fossils. Because millions of fossils of mammoths have been found in Siberia, there must have been incredibly high growth rates for all these mammoths to be reproduced in less than 4,350 years, if Walt Brown wants to make their presence as fossils fit into his **HPT** model.

Eleven Brown then is said to say: *“How did the mountains form? Major mountains are usually crumpled like an accordion. What force could push a long, thick slab of rock and cause it to buckle and sometimes fold back on itself without crushing the end being pushed? Even if the sediments were squeezed and folded prior to hardening, what squeeze them?”*

In his **HPT** model, Brown wants the mountains to be formed because of high-speed (60 mph) accelerations of plates that were pushed there by the explosive force of “the great fountains of the deep” emerging from mid-ocean spreading centers. In **Figure 3** is shown the Appalachian province where plate tectonics shoved former sedimentary rocks layers that were once deposited in a former ancient Atlantic Ocean basin and these layers were shoved westward when an ancient European plate was shoved westward to pile up and fold these rock layers to produce a former mountain range with peaks higher than 13,000 feet on the basis of projections of angles of tilt of these layers. Therefore, his **HPT** model is not a necessary requirement to make folded rocks in a mountain range.

Twelve In similar fashion Brown suggests that only his **HPT** model can explain overthrusts on the basis that anything *“pushing a large slab of rock with enough force to overcome frictional resistance would crush the slab before it would move.”*

Of course, crushing is likely to happen at the leading edge of a thick sliding rock mass, but that does not mean that the whole mass is crushed into broken blocks of rubble. The Lewis overthrust in the Rocky Mountains of Montana and Canada is an example of where deep-seated sedimentary rocks layers that

were once in a basin along the west coast of Canada have been shoved eastward by the diving of the Pacific oceanic plate under the North American continent. The leading edge of that thrust is Lewis Mountain where erosion has removed former crushed rock to leave it as an isolated mountain of older rock resting on younger underlying softer Cretaceous rocks. See: https://en.wikipedia.org/wiki/Lewis_Overthrust

Thirteen Brown is then said to say: “*Erupting lava usually exceeds 1800°F. Where does it come from and why is it so hot? The standard explanation is that magma originates in hot pockets called magma chambers at depths of about 60 miles. But how could magma escape to the surface? At depths greater than 4 or 5 miles, the pressure is so great that all empty channels through which magma might rise should be squeezed shut. Even if a crack could open, the magma must rise through colder rock — the magma would tend to solidify and plug up the crack.*”

The answer as to why it is so hot and where the heat comes from is because the Earth when it was formed as much as 4.6 billion years ago (not 6,000 years ago in the HPT model) contains radioactive elements whose decay releases tremendous amounts of heat energy. See **Figure 6**.

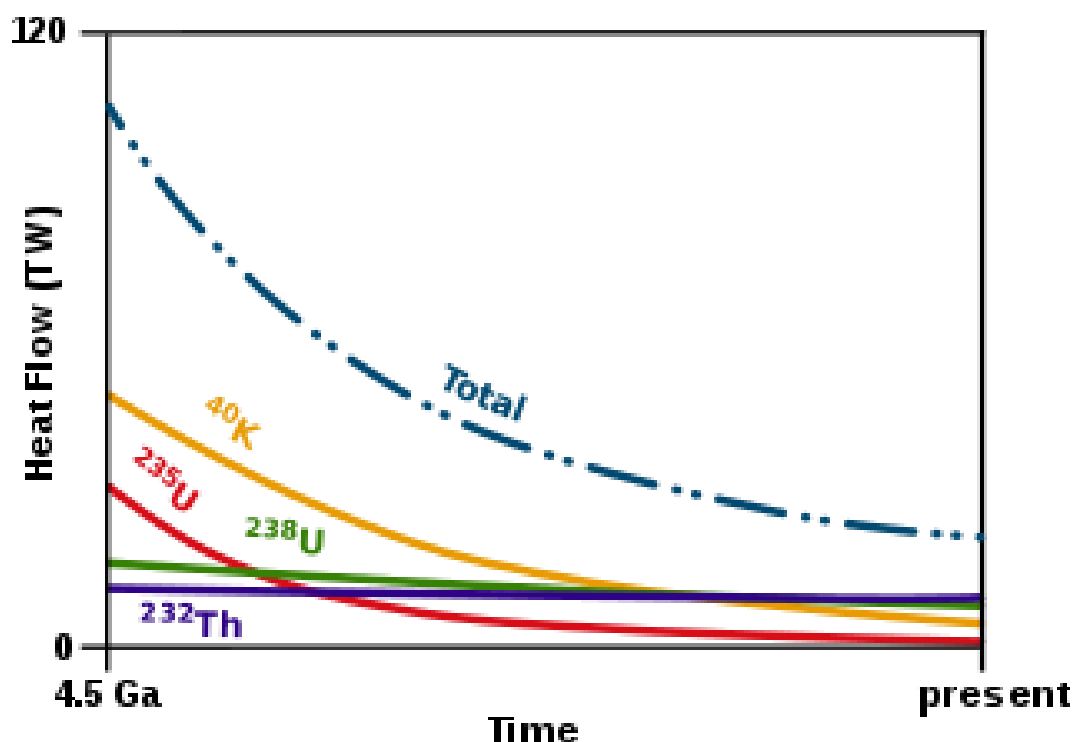


Figure 6. The evolution of Earth's heat flow over time from radioactive ^{232}Th , ^{238}U , ^{235}U , and ^{40}K . Source: Radiogenic nuclide https://en.wikipedia.org/wiki/Radiogenic_nuclide

That heat energy is still rising to cause rocks to melt where the pressure/temperature conditions and water content allow melting to occur. The magma chambers occur under the “ring of fire” (**Figure 1**) around the Pacific Ocean or in other localities, such as was once under the Sierra Nevada batholith in California. These magma chambers are volumes (places) where a relatively cold subducting oceanic plate that consists of mantle rocks and salt-water-bearing crustal rocks containing basalt and sedimentary layers have moved under the places that became magma chambers and where the subducted plate reached a depth of 100 kilometers where water-bearing minerals are heated

sufficiently to break down and release this water that migrates upward in the crust as superheated steam that is being recycled back to the Earth's surface again. This water moved into the places that became magma chambers and which facilitated the melting and the transfer of soluble elements upward toward the Earth's surface. Under continent areas, these elements are those found in granitic rocks whereas in oceanic regions these elements are those found in basalt. The rising water-bearing and partially melted rocks (magma) have lower density than the overlying colder rocks, and, therefore, are able to rise plastically and do not solidify but continue to rise where they may eventually cool enough to form coarse-grained plutonic igneous rocks below the Earth's surface or possibly come all the way to the Earth's surface to form fine-grained rocks in volcanic eruptions (the "ring of fire;" see magma chambers in **Figure 1**). How far the melted rock (magma) rises are functions of how much water is available that facilitates the melting.

It is then pointed out: *"The two deepest holes in the world are on the Kola Peninsula in northern Russia and in Germany's northeastern Bavaria. Drilled to depths of 7.5 and 5.6 miles respectively, neither hole reached the basalt that underlies the granite continents. Deep in the Russian hole, to everyone's surprise, was hot, flowing, mineralized water (including salt water) encased in crushed granite. Why was the granite crushed? In the German hole, the drill encountered salt-water-filled cracks throughout the lower few miles, with salt concentrations twice that of sea water. Surface water cannot migrate below about 5 miles because the weight of the overlying rock squeezes shut even microscopic flow channels. Although*

geologists are mystified by the presence of this deep salt water, the hydroplate theory resolves the mystery.”

The presence of greater concentrations of salt in water in these deep holes is not surprising because as illustrated in **Figures 3 and 4**, all continental areas have been subjected to colliding continental masses where salt-bearing oceanic crust has been subducted to great depths under the continents and would supply re-cycled salt. Therefore, the **HPT** is not necessary to resolve this supposed mystery.

Fourteen It is then said: *“Had the earth ever been molten, denser materials would have sunk toward the earth’s center, and lighter ones floated to the surface. One should not find dense metals like gold at the earth’s surface. No suggested transport mechanism satisfies all the requirements of this problem (e.g., volcanos transport material to the surface, but gold is not concentrated around volcanos). Even granite, the basic continental rock, is a mixture of many minerals with varying densities. If one melted granite and slowly cooled the liquid, the granite would not reform. Instead, it would become a layer cake of minerals sorted vertically by density. In other words, the earth’s crust appears to have never been molten.”*

Some of what Brown claims in the above paragraph is true but still does not support his **HPT** model. For example, what kinds of minerals that form upon cooling of the magma are functions of their crystal structures, elemental compositions, and bond strengths between different atoms (elements) in their chemical formulae of the different kinds of minerals. Water crystallizes at 0°C, but olivine crystallizes at very high

temperatures. In the crystallizing magma, as cooling occurs during millions of years, the first minerals that form are in the isometric system that is followed by minerals either in the hexagonal or tetragonal systems and then by minerals at lower temperatures in the orthorhombic, then monoclinic, and finally triclinic systems. In magmas that form silicate minerals, olivine crystallizes first, then pyroxenes, calcium-rich plagioclase feldspars, amphiboles, micas, sodium-rich plagioclase feldspars, potassium feldspar, and last quartz. Calcium-rich plagioclase feldspars form at higher temperatures than sodium-rich plagioclase feldspars and are zoned with calcic cores and sodic rims and before potassium feldspars. The atomic crystal structures of the minerals change in minerals crystallizing at high temperatures progressively to that found in minerals crystallizing at lower temperatures --- being composed of single SiO_4 tetrahedra to two tetrahedra (dumbbell shaped) to single chains of tetrahedra, to double chains, then sheet structures, and finally to that found in quartz in which all corners of a SiO_4 tetrahedra are shared in quartz (**Figure 7**).

Structural linkage schemes among silicates

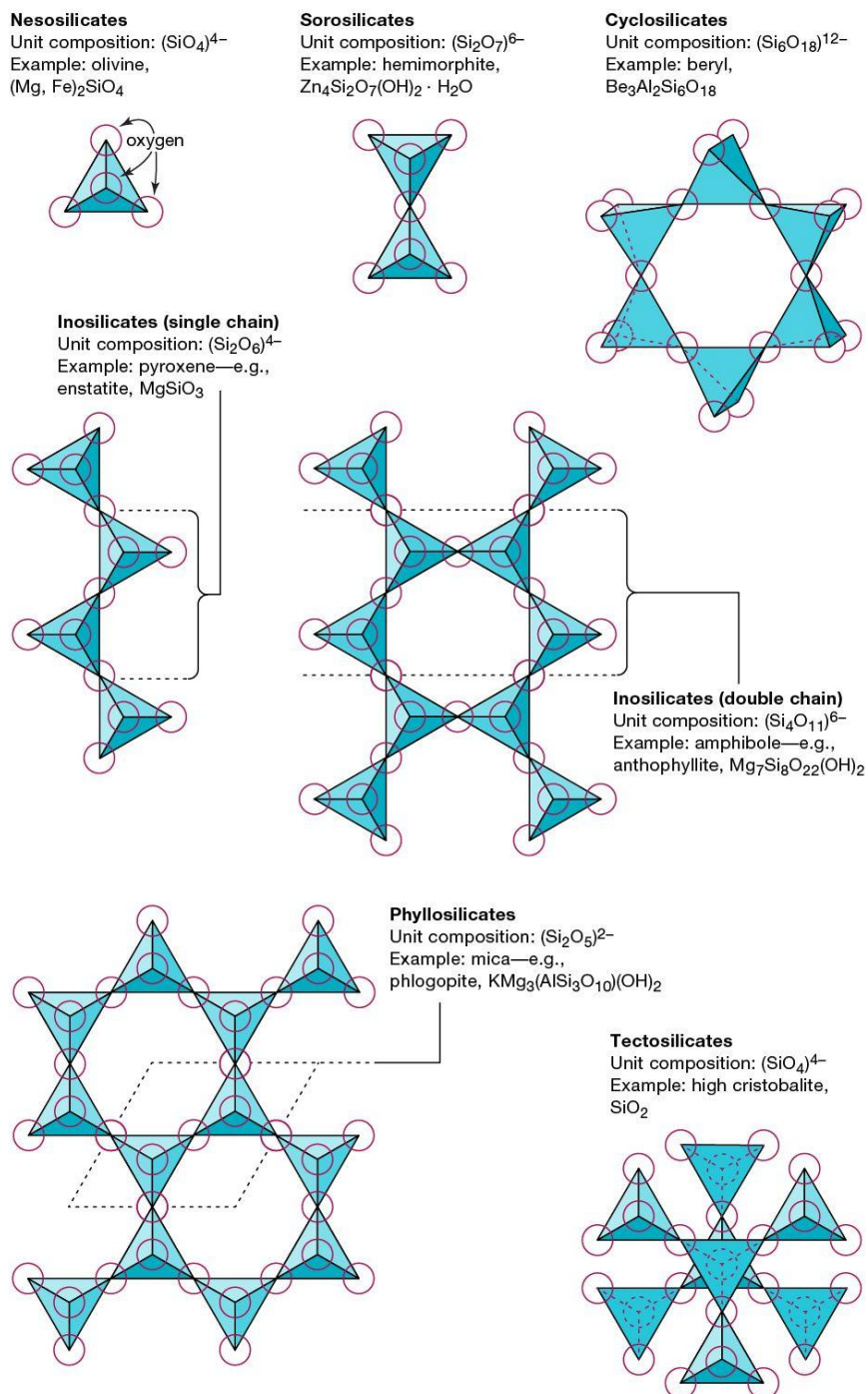


Figure 7. Silicon tetrahedral structures in the six crystal systems (single, dumbbell, hexagonal, single chain, double chain, sheet, and all corners of the tetrahedron shared in quartz).

The earlier crystallized silicate minerals at high temperatures tend to have higher densities and heavier elements (like iron, magnesium, and calcium), when they crystallize than minerals that crystallize at lower temperatures, and they settle out to the bottom of a magma chamber. For all the above reasons, it is true, as Brown says, that plutonic igneous rocks should become layered with minerals that are found in gabbro (the coarse-grained equivalent of basalt) at the bottom of a “magma chamber”, and progressively upward in overlying layers into diorite, then granodiorite and finally granite at the top of a layered igneous body. Therefore, when he says: *“In other words, the earth’s crust appears to have never been molten.”* --- on his belief that layering is not found is simply not true **because layering is found.**

When he says the following: *“One should not find dense metals like gold at the earth’s surface.”* --- that is also **not true.** What elements fit into the six different crystal systems are functions of their atomic sizes as ions with positive or negative charges. There are only certain-sized atomic-radii spaces for iron, magnesium, calcium, and sodium ions where they are stable in minerals that crystallize at high temperatures. Extra-large atoms (ions), like gold and uranium, do not fit into the smaller holes where iron, magnesium, and calcium ions can be inserted, and, likewise, extra-small atoms like boron, beryllium, and lithium do not fit into minerals in stable form because they “rattle around” in larger holes because of their small radii. On that basis, gold, uranium, boron, beryllium, and lithium do not crystallize in the minerals forming crystals at high- or medium (lower) temperatures, and they get separated out in the residual

magma to crystallize last with quartz or micas that crystallize last. Therefore, gold is found crystallizing in quartz veins in granitic rocks and is not associated with basaltic rocks that crystallize at high temperatures, and uranium is commonly found in zircon crystals inside biotite mica or as separate uranium oxide crystals. The elements boron, beryllium, and lithium are also associated with quartz in granite pegmatites (rocks with crystals larger than 3 cm long and may be more than a meter long) where they occur in gem minerals, like beryl, tourmaline, kunzite (spodumene), and emerald.

He then says: *“Geothermal heat measurements vary widely across the globe, and tend to challenge both the “molten earth” model and the idea that billions of years of cooling have transpired. What, then is the source of geothermal heat and why do the measurements associated with it (“temperature gradients”) fluctuate so widely?”*

The simple answer is that radioactive elements (**Figure 2**) that provide the heat are not distributed equally in the Earth and in some places more radioactive elements exist to supply extra heat than in other places.

Fifteen He then says: *“Limestone (calcium carbonate, CaCO_3) presents a challenge to modern geology: there’s too much of it based on the processes currently proposed to synthesize it. Most limestone is in extensive layers, tens of thousands of square miles in area and hundreds of feet thick, much of it quite pure. Under the Bahamas, the limestone is more than 3 miles thick! The presence of pure limestone, without the impurities that tend to drift in, argue for its rapid burial. Today,*

limestone forms either by precipitating out of sea water or by organisms taking it out of sea water to produce shells. In either case, oceans supply limestone sediments. The oceans already have as much limestone in them as they can possibly hold. Therefore, where did all the limestone come from, especially its calcium and carbon, which are relatively rare outside of limestone?”

None of what he says above is an argument for rapid burial. When he says: *“Today, limestone forms either by precipitating out of sea water or by organisms taking it out of sea water to produce shells.”* --- that also applies to all limestone deposited in layers in the past, and no rapid burial is required. What is required is the weathering of rock that contains abundant calcium that can be dissolved and transported by streams to the oceans or to continental fresh-water lakes where the calcium can be precipitated chemically or in animal shells in limestone. This dissolving takes millions of years to produce enough calcium to make the thick layers of limestone and could not happen in the one-year time of Noah’s flood. Basalt is relatively abundant on Earth and contains as much as 70 percent calcium-rich plagioclase feldspar and, therefore, is a ready source of calcium in many places for the creation of limestone. In any case, millions of years of weathering are required to produce enough calcium ions to be deposited in limestone layers that compose nearly 20% of sedimentary rocks in the Earth’s crust.

He then says: *“Metamorphic rock presents enigmas of its own. Marble, a metamorphic rock, forms when limestone is heated beyond 1600°F and squeezed at a confining pressure*

corresponding to the weight of a 23-mile high column of rock. Such metamorphic rocks are formed in the presence of water, often flowing water. What could account for the extreme pressure, temperature, and abundance of water?”

Not all that he says here is true. Marble is formed from limestone that is generally in high-grade metamorphic rocks at temperatures above 600°C (1100°F) and not as hot as 1600°F in rocks that have been buried to a depth (pressures) where the weight of the overlying rock could be that of a 23-mile-high column of rock but likely in rocks much less thick and, thus, lower pressures. However, at these depths and temperatures, water is eliminated from the earlier-formed water-bearing minerals, and new minerals lacking water that are stable at higher pressure/temperature conditions are formed, such as garnet. That is, the idea that Brown says in his **HPT** model that water must be abundant to form marble is **totally wrong!**

Sixteen He then says: *“Mt. Everest being only 5.5 miles high, it is difficult to imagine mountains 23 miles high, but modern geologists who think in terms of millions of years don’t see any difficulties here: the metamorphic rock is slowly transported from many miles under the surface up to where we can find it. However, this explanation ignores the water issue: surface water cannot seep any lower than about 5 miles, and even at a 5 mile depth it does not flow. Where did the flowing water come from at the requisite 23-mile depth?”*

Yes, it is true that Mt. Everest is a peak that is about 5.5 miles high and contains some marble, but this marble is associated with limestone and other sedimentary rocks (pelites;

fine-grained sandy mudstone or shale) that were deposited in an oceanic basin south of India. The formation of marble was originally where its depth (pressure) was just starting to change the limestone into marble and its formation has nothing to do with presence of water. Its presence on Mt. Everest is because plate tectonics has shoved these rocks south of India to pile them up in thrust sheets along the border of China.

Seventeen It is said here: *“Plateaus are relatively flat regions of large area that have been uplifted more than 500 feet relative to their surroundings. The standard model cannot explain their formation — the only explanation offered thus far invokes slow moving “convection currents” in solid rock some 30 miles below the surface sweeping enormous amounts of light rock from an unknown location and depositing it underneath the plateau. The Colorado plateau would require 2,500,000 cubic miles of granite to have been so transported, while the Tibetan plateaus would require 25,000,000 cubic miles of granite to have been swept under the region. In both instances, it is difficult to understand how this process deposited the granite in so uniform a layer, yielding a flat plateau of considerable extension (750,000 square miles of plateau in Tibet, for example). The source for this granite is even more troubling: the place from which this light rock originated should have been turned into an enormous geological depression, but no such predicted features have ever been observed on the earth.”*

This is just nonsense. No such “light rock” of low density (like granite) has been shoved under places where plateaus exist. Seismic data do not support the existence of any such light rock

in these places. What is shown in regard to the Colorado Plateau is that this plateau has been uplifted because of the low angle (less than 45 degrees) of the Pacific oceanic subducted-plate that was extended farther inland in the North American continent to lift up the rock layers there that became the plateau, and this extension also caused basaltic volcanic eruptions to occur that are near this plateau and farther inland than in the “ring of fire” (**Figure 1**). Moreover, Brown does not realize that the amount of lava that is erupted from volcanoes in the “ring of fire” to make their peaks higher than 13,000 feet cannot possibly be done during the time of Noah’s flood, ~4,350 years ago, and since that time to the present or the 30,000 feet of lava that underlie the volcanic peaks of Mauna Loa or Mauna Kea in the Hawaiian Islands. On that basis, these great thicknesses of lava in volcanoes are clearly evidence that his **HPT** model is **nonsense**.

Eighteen Lastly, it is said that: *“Thick layers of salt are buried up to several miles below the earth’s surface, sometimes in layers 100,000 square miles in area and a mile in thickness. Large salt deposits are not being laid down today. What concentrated so much salt? Sometimes a salt layer bulges up several miles, like a big underground bubble, to form a salt dome. Surprising large salt deposits lie under the Mediterranean; some have estimated that the Mediterranean must have evaporated 8-10 times to deposit so much salt. Although this estimate is probably low, the more damaging question is why each alleged refilling of the Mediterranean didn’t dissolve the salt residue left from the previous evaporation cycle”*

In this last statement, it is apparent that Brown does not understand where the chlorine ion came from in the salt (sodium chloride; NaCl) in these thick salt deposits and how the atomic ion radius of the Cl ion has such a powerful effect on where salt is deposited and why it is deposited. In item **Fourteen** above it is pointed out that the large size of the gold atom (ion) causes it to be concentrated in the magma in its last stages of crystallization with quartz because the gold atom (ion) does not fit into crystal spaces that occur in most minerals that crystallize in the six crystal systems. The negative chlorine ion (Cl^{-1}) is also an enormous ion. The discussion that follows comes from the following article and link:

Time to Accumulate Chloride Ions in the World's Oceans –
More Than 3.6 Billion Years Creationism's Young Earth
Not Supported [RNCSE25.5-6cdt \(csun.edu\)](http://RNCSE25.5-6cdt.csun.edu)

Science Behind Formation of Salt in World's Oceans

In considering the science of how the world's oceans become as salty as they are, the first question to ask is: "Are there enough Na^{+1} and Cl^{-1} ions available in the current continental sedimentary rocks and underlying Precambrian igneous and metamorphic rocks to demonstrate that the sodium ions and the chloride ions in the world's oceans can be supplied by these sources?" When the proper scientific analysis of these rocks is done (Collins 2006), it turns out that the world's oceans have 19 times as much chlorine in them as could come from these continental rocks, and that it would take a thickness of 425 miles of crustal rocks to be eroded to supply the amounts of

chlorine that occur in the world's oceans, which, of course, is impossible.

Some important facts need to be realized in order to understand what determines the amounts of sodium and chloride ions that are dissolved in the world's oceans. The first fact is the relative abundance of the various elements in the Earth's crustal rocks as seen in **Table 1**.

Table 1. Comparison of the abundance in parts per million of the eight most common elements in the Earth's crust to the abundance of the element chlorine (Klein and Hurlbut 1977).

<u>Element</u>	<u>Symbol</u>	<u>Abundance (ppm)</u>
Oxygen	O	466,000
Silicon	Si	277,200
Aluminum	Al	81,300
Iron	Fe	50,000
Calcium	Ca	36,300
Sodium	Na	28,300
Potassium	K	25,900
Magnesium	Mg	20,900
Chlorine	Cl	130

The second fact is the relative percentages of the elements of all the dissolved elements in sea water (**Table 2**).

Table 2. Percent of each element occurring as ions in sea water (UCAR 2002)

<u>Element</u>	<u>Percent of all Dissolved Ions</u>
Cl	55.8
Na	30.8
Mg	5.7
S	2.6
Ca	1.2
K	1.1

When the data in these two tables are compared, the amount of sodium (Na) in the Earth's crust (28,300 ppm) is enormous relative to the amount of chlorine (Cl) in the Earth's crust (130 ppm), but in the world's oceans a reverse relationship occurs when the relative percentages of dissolved ions of chlorine (Cl) and sodium (Na) are observed. Note that the abundance ratio of chlorine (Cl) to (Na) in the ocean is much higher compared to the overall ratio of 130 ppm Cl to 28,300 ppm Na.

To explain why this happens, a third set of data is shown in **Table 3**, which compares the relative sizes of the various ions of the elements, an aspect of ions that turns out to be very important.

Table 3. Comparison of the relative sizes (radii) of ions in angstroms (one angstrom is 10^{-8} cm).

<u>Ion</u>	<u>Size</u>
Si ⁴⁺	0.42 Å
Al ³⁺	0.51 Å
Mg ²⁺	0.66 Å
Fe ²⁺	0.74 Å
Na ¹⁺	0.97 Å
Ca ²⁺	0.99 Å
K ¹⁺	1.33 Å
O ²⁻	1.40 Å
Cl ¹⁻	1.81 Å

In chemistry classes, students learn that if ions are to join together to form a chemical compound, the resulting compound must be electrically balanced so that total positive charges on some elements (ions) match the total negative charges on other elements (ions) in that compound. In a mineralogy class, geology students learn that, not only must the electrical charges match, but also the sizes of the ions must fit into certain sized holes in the crystal structure of that compound. Note that the Si⁴⁺ ion has the size of 0.42 Å and that the O²⁻ ion has a size of 1.40 Å. These sizes are just the right size for one Si⁴⁺ ion to fit inside a tetrahedron of four O²⁻ ions (**Figure 7**), but other elements of different sizes are the wrong sizes to fit inside that tetrahedron. Therefore, spheres of different-sized ions fit into

different crystal structures in different places where the packing of ionic spheres in the structural spaces allows for different-sized holes between the spheres while still maintaining electrical balance between the ions.

Now here is the clincher that Walt Brown has **not** examined in his **HPT** model. Note that the chlorine ion (Cl^{-1}) is very large in comparison to ions of the other common elements. Its large size and difference in size relative to other ions, determine how soluble in water the Cl^{-1} ion is because water (H_2O) is an asymmetric molecule in which one end (with two hydrogens) has a positive charge on it and the other end has a negative charge. Because of this polar nature of water, many water molecules orient their positive ends to surround the negative Cl^{-1} ions, and many other water molecules orient their negative ends to surround the positive Na^{+1} ions. Because the Na^{+} ion is relatively tiny (a sphere whose radius is 0.97 \AA), fewer polar water molecules can surround it in comparison to the Cl^{-1} ion whose sphere has a radius of 1.81 \AA , allowing many more polar water molecules to surround it. This relationship between water molecules and a Cl^{-1} ion causes it to be extremely soluble, much more soluble than the Na^{+1} ion. There are so many water molecules surrounding each Cl^{-1} ion that the Cl^{-1} ion is, under most oceanic conditions, prevented from combining with Na^{+1} ions. Only in areas where a great deal of oceanic water has been evaporated (leaving the Na and Cl ions behind to be increasingly concentrated in the remaining water) do Na and Cl ions combine to form salt.

Table 2 that shows that there are far more Cl ions dissolved in ocean water than Na ions. This is explained by the fact that some Na ions are extracted from the sea water by the formation of other Na-bearing silicate minerals, such as zeolites and montmorillonite clay that form or settle on the ocean floor. On that basis, Cl ions are enriched in ocean waters relative to the Na ions.

Although Brown observes that “*large salt deposits are not being laid down today, there must have been times in geologic past where an isolated sea, such as the Mediterranean, must have allowed local evaporation of water.*”

Now, let’s look at Brown’s statement: “*Although this estimate is probably low, the more damaging question is why each alleged refilling of the Mediterranean didn’t dissolve the salt residue left from the previous evaporation cycle.*” He does **not** realize that when sea water likely refilled the Mediterranean basin, this sea water does **not** cause it to dissolve the deposited salt again because it is salt-bearing water that is refilling the basin and the large size of the Cl^{-1} ions are surrounded by so many water molecules that the sea water is unable to dissolve any more deposited salt or at least little of it.

Other Items in Walt Brown’s Hydroplate Theory

What follows in Selbrede’s description of Brown’s **HPT** model are many pages of what happens during (a) the first start of his model, (b) the rupture of the Earth’s crust to form the mid-ocean spreading centers, (c) the creation of the flood stage, (d) the rapid continental drift phase, and (e) a recovery phase. The

discussion of these topics is followed by three predictions that Brown says that his **HPT** model would produce if further studies were made. Then, this is followed by (a) a discussion of what produces liquefaction that would affect the processes that occur in the progression of his model, (b) three examples of wave loading that he says occurs in his model, (c) a discussion of supposed liquefaction that occurs during the Flood and a compression event, (d) a discussion of limitations of this condensation, and finally (e) how the **HPT** model is related to scriptures in the Bible. All of what occurs in his **HPT** model is a description of how Noah's flood was supposed to have been produced in one year in which the action of water molecules in waves produced during the giant storm that caused Noah's flood to occur, and the supposed erosion to produce sediment fragments and their transport to the Grand Canyon to be deposited there (**Figure 8**).

Waves –circular motion

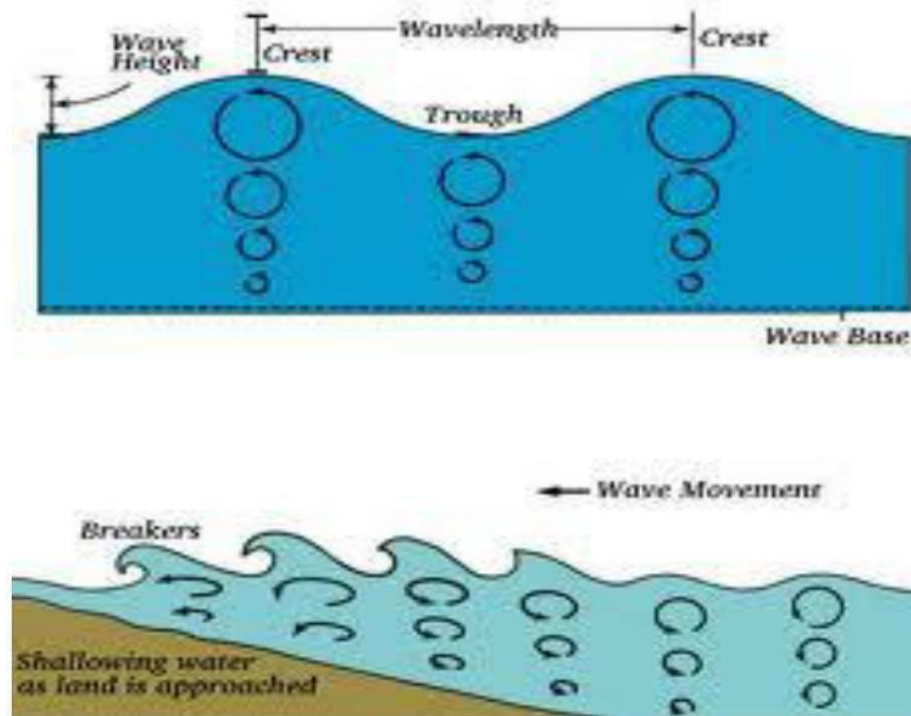


Figure 8. Motion of water molecules in ocean waves.

This figure clearly shows that the circular motions of water molecules in storm waves are incapable of eroding sediment particles from the ocean floor, suspending them and transporting them laterally to distances as far away as the Grand Canyon. Moreover, a supposed supersonic jet of water coming from the “fountains of the great deep” would have been unable to sort out sedimentary particles to make separate layers of shale, sandstone, and limestone.

Conclusion

Walt Brown's **HPT** model fails from the start, not only because of what is shown in **Figure 8**, but also because the laws of physics make it impossible for a huge volume of free water to exist in the lower crust or upper mantle that could be ejected at supersonic speeds in supposed "fountains of the great deep" from mid-ocean spreading centers that would have produced half of the water in the world's oceans. Pressures of the weight of rock in the crust (even at shallow depths in the upper mantle) force all water molecules (H_2O , OH , and H [protons; hydrogen nuclei]) to be in the interstices between silicate mineral boundaries or as impurities inside the mineral lattices. That is, no large volume of free water molecules can ever have once existed there. In combination with the errors made and described in the above 18 items and the absence of large volumes of free water make Walt Brown's **HPT** model have **NO** merit.

In reality, the "fountains of the great deep" have a natural scientific explanation that is explained in the following article and link:

Fountains of the Great Deep and Noah's Flood
[Nr64Fountains.pdf \(csun.edu\)](#)

Furthermore, the following two article suggest that when the Earth was formed, very little water existed in the Earth's atmosphere as vapor or as liquid water on its surface.

Geologic consequences of a global Archean ocean – the Big Hurricanes Theory [Nr116Archean4.pdf \(csun.edu\)](#)

Further Consequences of the Big Hurricanes Theory
[Nr121Further6.pdf \(csun.edu\)](#)

What water that was present was scattered as H₂O, OH, and H (protons; hydrogen nuclei) in crystal boundaries or inside crystal lattices throughout the Earth's mantle surrounding an iron core. But the total amount of water in the early mantle (because of its great thickness and volume) was likely 5 times or more the amount of water in the world's oceans today. This scattered water (steam) slowly rose to the Earth's surface to emerge explosively in basaltic volcanoes where each 1 cc of steam in the mantle at very high pressures and temperatures above 1800°F (982°C) expanded to 510 cc of vapor. Eventually, this vapor cooled and condensed and fell as rain or snow to become liquid water on the Earth's surface. In this way, early oceans on the Earth's surface were shallow but eventually increased in volume and depths to the amounts that occur today in the world's oceans. That is, the ocean waters had **NO** origin as the supposed "great fountains of the deep" in Brown's **HPT** model and slowly increased in volume through millions of years and **not** during one year of the supposed global Noah's flood. The slow rise of Cl from the mantle also occurred with the slow rise of water to emerge as HCl vapor that became the NaCl in the oceans. Therefore, the world's oceans were once fresh water but became increasingly saltier through geologic time.

Although Brown discusses the "fountains of the great deep" in his theory, he does mention "... *and the floodgates of the heavens were opened*" without discussing whether this water actually comes from the "waters above the firmament" in the

“Heavenly Sea” in the three-tier Earth model that early biblical people believed in (**Figure 9**).

2. Ancient Science (3-Tier Universe)

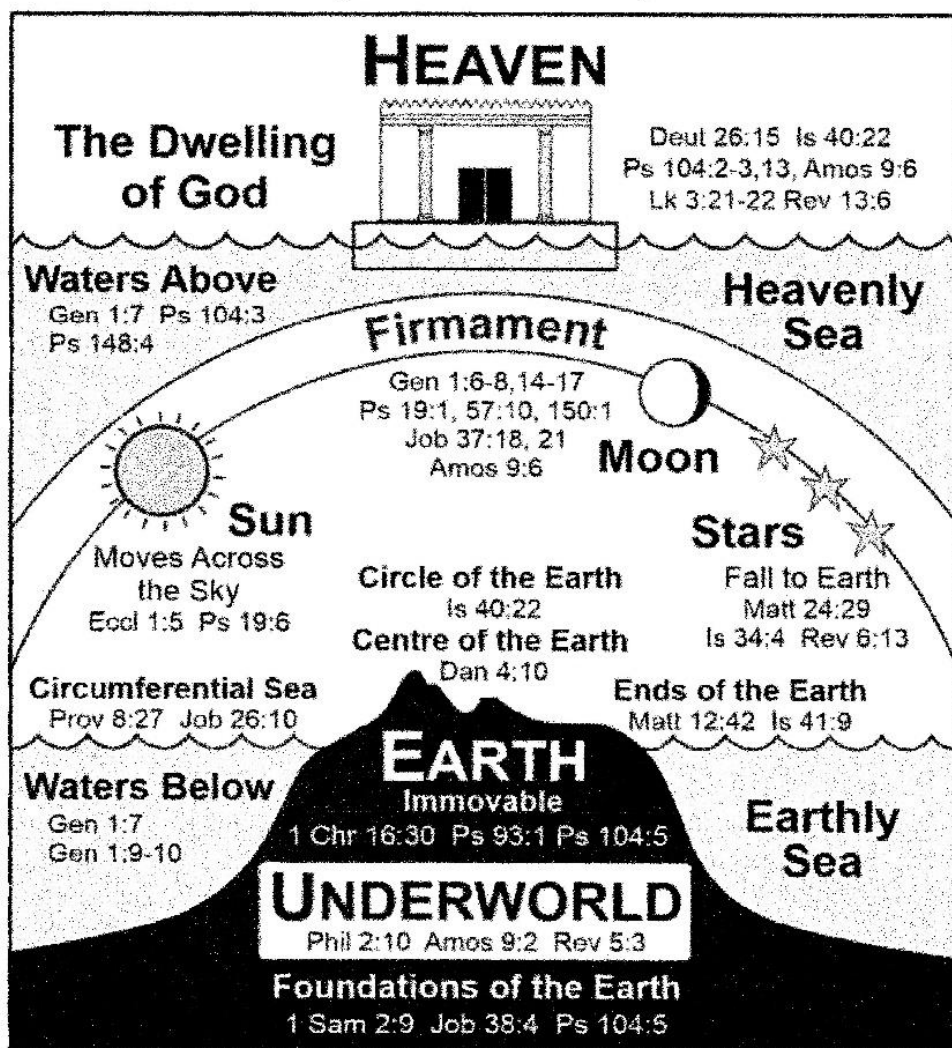


Figure 9. Three-tier universe.

Because many Christians believe that the other half of the water in the world’s ocean that was produced during the 40 days and 40 nights of rain came from the “heavenly sea,” including at least one person who is a Jehovah Witness, this model is debunked in the following article.

Noah's flood: Is the source of its water from the waters above? [Nr103WatersAbove.pdf \(csun.edu\)](#)

The Bible is correct that there was a large amount of water produced in a storm involving 40 days and 40 nights of rain, but it was a very large storm in a local area in southeastern Mesopotamia during early biblical times as described in the epics of Gilgamesh and Atrahasis that Moses used in writing his theological message of Noah's flood story. See:

Yes, Noah's Flood May Have Happened, But Not Over the Whole Earth [RNCSE25.5-6cdt \(csun.edu\)](#)

But the 40 days and 40 nights of rain are not likely these numerical values but is a Hebrew way of saying that the storm lasted for a long time.

Also, although Brown uses the high-speed water jets in his theory of the "fountains of the great deep" to move continents around at high speeds, Dr. John Baumgardner proposed that the continents were moved around during accelerated plate tectonics and that this acceleration produced multiple giant tsunamis that eroded rocks in continental borders and deposited the eroded debris across the continents to make the sedimentary layers in the Grand Canyon and elsewhere around the world. His model is debunked in the following two articles.

Baumgardner's Tsunami and Rapid Plate Tectonics Model
[Nr88Baum.pdf \(csun.edu\)](#)

Critique of "The Role of Large Tsunamis in the Formation of the Flood Sediment Record" by John Baumgardner and

Evan Novarro and the Clarey/Werner megasequences
[Nr120Tsunami4.pdf \(csun.edu\)](#)

Where is the Christian Message in this Article?

Some readers have complained that there is no mention of Jesus or a Christian message in my articles. So, I am going to do that now.

I indicated that no science merit exists in what Walt Brown proposed in his **HPT** model, but there is great merit in that what he proposed is a sincere effort by a Christian to use the science that he understood to make the Bible the Word of God and true in what it says that “...*on that day all the springs of the great deep burst forth...*” He, like many other sincere Christians, want to make the Bible the Word of God as literally translated without error because God in his view (and by other Christians) does **not** tell any lies.

Some Christians have told me that the Bible is the complete history of humans and other Christians have used the recorded ages of humans in various generations in the Bible, described in Genesis and other places, to estimate that the Earth is 6,000 years old, and, therefore, these Christians (as young-Earth creationists) attempt to put the science that they understand into this 6,000-year time-frame.

Some ancient human ages in the Bible range from as much as 600 years for Noah to 969 years for Methusaleh. But skeletons of humans that have been found that date to early biblical times show no evidence of having lived that long because their molars do **not** show the damage that would exist

for a human living that long. On that basis, the long ages are **not** likely true but a Hebrew way of honoring some Hebrews who lived for a long, normal, human lifespan but who had memorized oral histories that they could share that no one else had remembered. Therefore, they were very wise people and needed to be honored for such wisdom by giving them long ages.

Other Christians have pointed out that the Bible says that God spoke the universe into existence.

¹*“In the beginning, God created everything: the heavens above and the earth below. (**Here’s what happened**)* ²*At first the earth lacked shape and was totally empty, and a dark fog draped over the deep while God’s spirit-wind hovered over the surface of the empty waters. Then there was the **voice of God...**”* (Genesis 1:1-2)

That is, God seems to say that He did **not** create the universe and Earth by using science and natural laws during millions of years (or 6,000 years) but just instantly (*In the beginning, God created everything*), and He did it by speaking them into existence. In fact, there are 38 places in the Bible where God is “speaking” (“God said”) and which in some places the speaking creates something instantly. See:

<https://bible.knowing-jesus.com/topics/God-Speaking> On that basis, in the view of some Christians, any science that explains some Earth or cosmic process comes from the thoughts of evil humans and is considered by these Christians to be totally false and a myth because it is unproven, such as the Big Bang theory.

Now back to the point of the Bible being the complete history of all humans. That is **not** true. It records the history of Hebrews in the OT and makes no mention of the histories of Romans, Egyptians, Assyrians, Greeks, Chinese, Māori in New Zealand, or American Indians. Ancient humans lived long before 6,000 years because we find older times when they first began to do paintings on cave walls and make jewelry and musical instruments long before what time is recorded in the Bible. Dates for the oldest cave-wall paintings are between 43,000 to 65,000 years ago. See:

<https://search.yahoo.com/search?fr=mcafee&type=E210US714G0&p=dates+of+paintngs+on+cave+walls>

Pollen in mud between toes of human footprints in New Mexico give C-14 dates of 21,000 to 23,000 years ago. See: <https://www.bbc.com/news/science-environment-58638854>

And dating methods on bones of twenty-eight ancient Neanderthal skeletons in the bottom of a cave in Spain give an age of 430,000 years. See:

<https://www.smithsonianmag.com/science-nature/essential-timeline-understanding-evolution-homo-sapiens-180976807/>

Modern human “Homo sapiens” contain some Neanderthal DNA, so it is clear that we are related.

The oldest Homo sapiens have been found in Europe in a cave in Bulgaria with dates that are as much as 47,000 years old.

<https://www.science.org/doi/10.1126/science.368.6492.697#:~:text=Researchers%20re-excavated%20the%20cave%20and%20used%20a%20cutting-edge,earliest%20known%20members%20of%20our%20species%20in%20Europe.>

What the Bible records in the early history of the Hebrews is their progressive change in their views of who God was and where God existed. That is, God was first in heaven on a throne (**Figure 9**), then put in a portable ark in a tent, and then in the ark in a temple built of stones in Jerusalem. The early view of the Hebrews was that God was a judgmental and punishing God and directed the Hebrews to kill neighbor tribes, including women and children. However, we then learn from Jesus that God is not in an ark in a temple but can dwell in humans and is a loving and forgiving God and that we are supposed to love our enemies and not kill them.

I am aware that 2 Timothy 3:16 says: "All scripture is inspired by God and profitable for teaching, for reproof, for correction and training in righteousness." But this is "training in righteousness" and **not** "training in science."

In Luke 10:27 Jesus commanded us to: "Love the Lord your God with all your heart and with all your soul and with all your strength and with all your mind." The first three are in the Torah, but Jesus added "with all your mind." On that basis, He expects us to use our minds and read the Bible with wisdom and recognize that Moses and other authors were living at a time in which there were no microscopes or telescopes and were **not** teaching a science lesson.

As pointed out above, in ancient times God was thought to be in heaven in a three-tier universe (**Figure 9**). Because early people saw that the sun and moon were circles in heaven, they

considered circles to be necessary for perfection because that was where God dwelled. They thought that the planets (Mercury, Venus, Mars, Jupiter, and Saturn) also moved around the Earth in perfect circles (the geocentric theory). But then Galileo observed in his telescope that the Moon was not perfect but had mountains as blemishes. Later it was found with telescopes that the sun also had black spots that were blemishes. Still even later, it was realized that the planets did not move in circles but in ellipses (the heliocentric theory) as does the Earth and the Moon. In other words, with new data, scientific models had to be changed to accommodate the new data. Likewise, the early Hebrews are shown to change their views about God progressively through their history.

For example, in the book of Jonah, Jonah was commanded by the Lord to go to the city of Nineveh and “*preach against it because its wickedness has come up before me.*” But Jonah did not want to do that because the people of Nineveh were enemies, and he ran away and boarded a ship to sail to Tarshish to avoid doing what the Lord commanded. Then the Lord commanded a storm to come, endangering the ship, and the sailors of the ship threw Jonah into the sea where it is said that he was swallowed by a great fish. After three days in the belly of the fish, the fish belched him out on a beach, and Jonah became convinced by the Lord that he needed to go to Nineveh and preach against the people there who were worshiping worthless idols. When Jonah did go to Nineveh and preach, the king there commanded the

people to repent and they did. When that happened, Jonah became very angry because Jonah thought that God's love was only for him and the Hebrew people. But the book of Jonah eventually shows that the love and forgiveness of God is meant for all people (including enemies) and not just for the Hebrews and that Jonah needed to change his theology, which he eventually did. If Jonah and the Hebrews can change their minds about God with new data and change their theology, shouldn't modern Christians do the same about God as new science data become available and learned?

I need to point out that Jesus knew about the existence of Noah's flood as reported in Matthew 24:37, but Jesus did **not** say that it was global. On that basis, when a pastor of a church says that a person must believe that Noah's flood was global and deposited the sedimentary rocks in the Grand Canyon in order to be a member of that church and be a Christian, such a person, who knows this not to be true, may decide to be an atheist. But if it is really true that Noah's flood was not global, shouldn't that truth be allowed? After the resurrection of Jesus, He told His disciples: "*I have yet many things to say unto you, but you cannot bear them now.*" (John 16: 12) Jesus would have known that the Noah's flood was not global, but He could not have explained all the science to his disciples how this was true because they would not know about all the kinds of evidence that makes this true, like the motion of water molecules in **Figure 8**, and think Jesus to be crazy if he described this to them

and other science evidence and told them about galaxies, protons, Cepheid variable stars, and evolution of life, etc.

Jesus never said there were certain things a person must believe to be a Christian. He just said: “Come follow me.” Shouldn’t all Christians follow Jesus with freedom to have doubts that we may not have everything right about science and may never learn how God did all of His creation processes. Nevertheless, we can be like the person who said: “I believe, help my unbelief.” (Matthew 9:24)

In addition to this critique of the science views of Walt Brown, I have written 15 other critiques of false science views of other Christians that can be found at this link:

[Nr122Resources5.pdf \(csun.edu\)](#)

I wish also to call your attention to the fact that I have added a **Postscript** to the following article and link:

BOGUS "NOAH'S ARK FROM TURKEY EXPOSED AS A COMMON GEOLOGIC STRUCTURE [Nr1Bogus2.pdf \(csun.edu\)](#)

In this article I speculated how supposed fossilized remains of Noah’s ark in eastern Turkey could have a natural origin-explanation without having been there or having done further studies of it. The **Postscript** provides links to four other subsequent articles in which these studies were made that truly show that the streamlined boat-shaped structure at this site has a natural geologic origin and **cannot** be remnants of Noah’s ark.

My own Christian witness can be found at this link: <https://www.csun.edu/~vcgeo005/salt.htm> It is a vesper message that I gave as a Methodist in the late 1970s at Holden Village (a Lutheran family camp) in the Cascade Mountains of the state of Washington. I still hold to what I say in this message.

Acknowledgments

I wish to thank Jeffrey Borg who called my attention to the **HPT** model of Walt Brown and for his review and approval of my article. I also acknowledge Larry Beer who called my attention to the many places in the Bible where God is said to speak things into existence and Tas Walker for pointing out that many Christians believe that the Bible contains the history of all humans on Earth. I thank the many Christians who have made sincere efforts to make the Bible to be the **Word of God**, which it is, by the great theology that it contains, describing who God is and why He exists. I am also thankful that God has given me another book to read, science/nature, in which He answers the questions of when, where, and how He did His creation. Both books are true because they come from God, and God is **not** a liar. But it is the death of Jesus on the cross and his resurrection that saves me and all sinful people and not science.

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